

## CLAIMS

I claim:

1. A tool holder arrangement including:

a tool holder to be mounted on a support and allowing removable attachment thereto of any one of a plurality of tools;

a sensor arrangement operable to sense at least one feature present on a tool when attached to the tool holder, being a feature or features unique to the specific tool; and  
a processor operable to identify uniquely, from the sensed feature or features, the type of the tool attached to the tool holder,

the tool holder and the sensor arrangement being such that a tool is electrically isolated from the support when the tool is attached to the tool holder.

2. A tool holder arrangement according to Claim 1 wherein the sensor arrangement is operable to sense at least one feature present on a tool in the form of a projection on the tool.

3. A tool holder arrangement according to Claim 1 wherein the sensor arrangement is operable to sense at least one feature present on a tool in the form of a recess on the tool.

4. A tool holder arrangement according to Claim 2 wherein the sensor arrangement includes a plurality of axially movable rods extending to a face of the tool holder which is adjacent the tool when the tool is attached to the tool holder, there being a respective switch element actuatable in response to movement of each of the rods.

5. A tool holder arrangement according to Claim 4 wherein each rod is resiliently biased to an initial position by means of a spring.

6. A tool holder arrangement according to Claim 4 wherein the rods are evenly angularly spaced about the circumference of a notional circle.

7. A tool holder arrangement according to Claim 4 wherein the rods are arranged in linear co-alignment.

8. A tool holder arrangement according to Claim 2 wherein the sensor arrangement is operable to sense at least one feature present on the tool in the form of a magnetic element.

9. A tool holder arrangement according to Claim 8 wherein the sensor arrangement includes a plurality of detectors responsive to a magnetic field.

10. A tool holder arrangement according to Claim 1 wherein the tool holder incorporates a connector element to which the tool may be mounted, the connector element being formed of or mounted on an element of insulating material.

11. A tool holder arrangement according to Claim 1 wherein the sensor arrangement is operable to sense two said features on a tool.

12. A tool holder arrangement according to Claim 11 wherein the processor is adapted to generate an alarm signal if only one said feature on a tool is detected.

13. A tool holder according Claim 1 in combination with at least one tool.

14. A combination according to Claim 13 wherein the sensor arrangement includes a plurality of axially moveable rods extending to a face of the tool holder which is adjacent to the tool when the tool is attached to the tool holder, there being a respective switch element actuatable in response to movement of each of the rods, wherein the tool is provided with two projecting elements positioned to be co-aligned with two said rods.

15. A combination according to Claim 13 wherein the sensor arrangement includes a plurality of axially moveable rods extending to a face of the tool holder which is adjacent to the tool when the tool is attached to the tool holder, there being a respective switch element actuatable in response to movement of each of the rods, the tool being provided with two recesses positioned to be coaligned with two said rods.

16. A combination according to Claim 13 wherein the sensor arrangement includes a plurality of detectors responsive to a magnetic field and the tool is provided with two magnetic elements positioned to be co-aligned with two said detectors.

17. A tool holder arrangement including:

a tool holder to be mounted on a support and allowing removable attachment thereto  
of any one of the plurality of tools;

a sensor arrangement operable to sense two features present on a tool when attached  
to the tool holder, being features unique to the specific tool; and

a processor operable to identify uniquely, from the sensed features, the type of tool  
attached to the tool holder,

the tool holder and the sensor arrangement being such that the tool is electrically isolated  
from the support when the tool is attached to the tool holder.

18. A tool holder arrangement according Claim 1 incorporated in a robot.